

**IN THE CLAIMS:**

1. (Currently amended) A microemulsion comprising microdroplets having an adsorbent surface, said microemulsion ~~comprising a microdroplet emulsion~~ comprising:
  - (a) a metabolizable oil; and
  - (b) an emulsifying agent;wherein, said emulsifying agent comprises an ionic detergent.
2. (Currently amended) The microemulsion of claim 1 wherein said ~~oil and said emulsifying agent are present in the form of~~ microemulsion is an oil-in-water emulsion comprising having oil microdroplets, wherein substantially all of the oil microdroplets are less than 1 micron in diameter, and wherein said ~~composition~~ microemulsion exists in the absence of a polyoxypropylene-polyoxyethylene block copolymer.
3. (Original) The microemulsion of claim 2, wherein said oil is a member of the group consisting of an animal oil, an unsaturated hydrocarbon, a terpenoid, and a vegetable oil.
4. (Currently amended) The microemulsion of claim 3 wherein said oil is a terpenoid selected from which is squalene, squalane and mixtures thereof.
5. (Currently amended) The microemulsion of claim 2 wherein said ~~composition~~ microemulsion comprises 0.5 to 20% by volume of said oil in an aqueous medium.
6. (Currently amended) The microemulsion of claim 1 wherein said ~~composition~~ microemulsion comprises 0.01 to ~~0.5 %~~ 2.5 % by weight of said emulsifying agent.
7. (Currently amended) The microemulsion of claim 1 wherein said emulsifying agent further comprises a non-ionic detergent.

8. (Currently amended) The microemulsion of claim 7 wherein said emulsifying agent further comprises ~~a polyoxyethylene sorbitan mono-, di-, or triester or a sorbitan mono-, di-, or triester~~ a non-ionic detergent selected from polyoxyethylene sorbitan monoesters, polyoxyethylene sorbitan diesters, polyoxyethylene sorbitan triesters, sorbitan monoesters, sorbitan diesters and sorbitan triesters.

9. (Original) The microemulsion of claim 1 wherein said emulsifying agent comprises a cationic detergent.

10. (Currently amended) The microemulsion of claim 9 wherein said cationic detergent is selected from the group consisting of hexadecyltrimethylammonium bromide, benzalkonium chloride, dimethyl dioctodecyl ammonium bromide, ~~DOTAP dioleoyl-3-trimethylammonium-propane~~, dodecyltrimethylammonium bromide, benzyldimethylhexadecyl ammonium chloride, cetylpyridinium chloride, methylbenzethonium chloride, and 4-picoline dodecyl sulfate.

11. (Currently amended) The microemulsion of claim 9 wherein said ~~composition~~ microemulsion comprises 0.01 to ~~0.5 %~~ 2.5 % by weight of said emulsifying agent.

12. (Original) The microemulsion of claim 1 wherein said emulsifying agent comprises an anionic detergent.

13. (Currently amended) The microemulsion of claim 1, further comprising a biologically active macromolecule adsorbed on the surface thereof, wherein the biologically active macromolecule is at least one member selected from the group consisting of a polypeptide, a polynucleotide, a polynucleoside, an antigen, a pharmaceutical, a hormone, an enzyme, a transcription or translation mediator, an intermediate in a metabolic pathway, an immunomodulator, and an immunological adjuvant.

14. (Currently amended) The ~~composition~~ microemulsion of claim 13 wherein said macromolecule is an immunological adjuvant selected from the group consisting of a CpG oligonucleotide, alum, a bacterial cell wall component, and muramyl peptide.

15. (Original) The microemulsion of claim 14 wherein said oligonucleotide comprises at least one phosphorothioate bond.

16. (Original) The microemulsion of claim 15 wherein said oligonucleotide comprises at least one peptide nucleic acid bond.

17. (Original) The microemulsion of claim 16 wherein said oligonucleotide comprises a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1-28.

18. (Original) The microemulsion of claim 14 wherein said oligonucleotide comprises a CpG motif flanked by two purines immediately 5' to said motif and two pyrimidines immediately 3' to said motif.

19. (Original) The microemulsion of claim 13 wherein said antigen is from a virus.

20. (Original) The microemulsion of claim 19 wherein the viral antigen comprises a viral subunit.

21. (Original) The microemulsion of claim 19 wherein the virus is selected from the group consisting of hepatitis C virus (HCV), hepatitis B Virus (HBV), herpes simplex virus (HSV), human immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus (flu), and rabies virus.

22. (Original) The microemulsion of claim 19 wherein said antigen is selected from the group consisting of HSV glycoprotein gD, HIV glycoprotein gp120, and HIV p55 gag.

23. (Original) The microemulsion of claim 13 wherein said antigen is from a bacterium.
24. (Original) The microemulsion of claim 23 wherein said bacterium is selected from the group consisting of cholera, diphtheria, tetanus, pertussis, *Helicobacter pylori*, and *Haemophilus influenza*.
25. (Original) The microemulsion of claim 13 wherein said antigenic substance is from a parasite.
26. (Original) The microemulsion of claim 25 wherein said parasite comprises a malaria parasite.
27. (Withdrawn) A method of inducing an immune response in a host animal comprising administering to said animal the microemulsion of any of claims 13-26.
28. (Withdrawn) The method of claim 27 wherein said host animal is a mammal.
29. (Withdrawn) The method of claim 28 wherein said mammal is a human.
30. (Withdrawn) A method of immunizing a host animal against a viral, bacterial, or parasitic infection comprising administering to said animal the microemulsion of any of claims 13-26 in an amount effective to induce a protective response.
31. (Withdrawn) The method of claim 30 wherein said host animal is a mammal.
32. (Withdrawn) The method of claim 31 wherein said mammal is a human.
33. (Withdrawn) A method of inducing a Th1 immune response in a host animal comprising administering to said animal the microemulsion of any of claims 13-26.

34. (Currently amended) A composition comprising the microemulsion of claim 13 and a microparticle having an adsorbent surface, said microparticle comprising:

a polymer selected from the group consisting of a poly( $\alpha$ -hydroxy acid), a polyhydroxy butyric acid, a polycaprolactone, a polyorthoester, a polyanhydride, and a polycyanoacrylate; and  
a second detergent, which may be the same as or different from said ionic detergent.

35. (Original) The composition of claim 34, wherein said microparticle further comprises a first biologically active macromolecule adsorbed on the surface thereof, wherein the first biologically active macromolecule is at least one member selected from the group consisting of a polypeptide, a polynucleotide, a polynucleoside, an antigen, a pharmaceutical, a hormone, an enzyme, a transcription or translation mediator, an intermediate in a metabolic pathway, an immunomodulator, and an adjuvant.

36. (Original) The composition of claim 34, wherein said microparticle further comprises a second biologically active macromolecule encapsulated within said microparticle, wherein the second biologically active macromolecule is at least one member selected from the group consisting of a polypeptide, a polynucleotide, a polynucleoside, an antigen, a pharmaceutical, a hormone, an enzyme, a transcription or translation mediator, an intermediate in a metabolic pathway, an immunomodulator, and an adjuvant.

37. (Original) The composition of any of claims 34-36, wherein the microparticle comprises a poly( $\alpha$ -hydroxy acid) selected from the group consisting of poly(L-lactide), poly(D,L-lactide) and poly(D,L-lactide-co-glycolide).

38. (Original) The composition of any of claims 34-36, wherein the microparticle comprises poly(D,L-lactide-co-glycolide).

39. (Original) The composition of any of claims 34-36, wherein the second detergent is a cationic detergent.

40. (Original) The composition of any of claims 34-36, wherein the second detergent is an anionic detergent.

41. (Currently amended) The composition of any of claims 34-36, wherein the second detergent is ~~an~~ a nonionic detergent.

42. (Original) The composition of any of claims 35-36, wherein the first biologically active macromolecule is an antigen selected from the group consisting of gp120, p24gag, p55gag, and Influenza A hemagglutinin antigen.

43. (Original) The composition of any of claims 35-36, wherein the first biologically active macromolecule is a polynucleotide which encodes gp120.

44. (Currently amended) The composition of claim 36, wherein the second biologically active macromolecule is an immunological adjuvant.

45. (Currently amended) The composition of any of claims 34-36, wherein the immunological adjuvant adsorbed to the microparticle is an aluminum salt.

46. (Original) The composition of any of claims 34-45, further comprising a pharmaceutically acceptable excipient.

47. (Currently amended) The composition of any of claims 34-46, further comprising an unadsorbed immunological adjuvant.

48. (Currently amended) The composition of claim 47, wherein the unadsorbed immunological adjuvant is a member selected from the group consisting of CpG oligonucleotides, LTK63, LTR72, MPL, QS21, Quil A, and an aluminum salt.

49. (Currently amended) The A-composition of claim 48, wherein the unadsorbed immunological adjuvant is an aluminum salt which is aluminum phosphate.

50. (Withdrawn) A method of delivering a therapeutically effective amount of a macromolecule to a vertebrate subject comprising the step of administering to the vertebrate subject the composition of any of claims 35, 36, 42, 43, 44, 47, or 48.

51. (Withdrawn) Use of a composition of any of claims 35, 36, 42, 43, 44, 47, or 48 for diagnosis of a disease.

52. (Withdrawn) Use of a composition of any of claims 35, 36, 42, 43, 44, 47, or 48 for treatment of a disease.

53. (Withdrawn) Use of a composition of any of claims 35, 36, 42, 43, 44, 47, or 48 for a vaccine.

54. (Withdrawn) Use of a composition of any of claims 35, 36, 42, 43, 44, 47, or 48 for raising an immune response.

55. (New) The microemulsion of claim 1 wherein said microemulsion is an oil-in-water emulsion comprising oil microdroplets, substantially all of which are less than 1 micron in diameter.

56. (New) The microemulsion of claim 1 wherein said microemulsion is an oil-in-water emulsion comprising oil microdroplets, at least about 95% of which are less than 1 micron in diameter.

57. (New) The microemulsion of claim 1 wherein said microemulsion is an oil-in-water emulsion comprising oil microdroplets, at least about 95% of which are less than 0.8 micron in diameter.

58. (New) The microemulsion of claim 1 wherein said microemulsion is an oil-in-water emulsion comprising oil microdroplets, at least about 95% of which are less than 0.5 micron in diameter.

59. (New) The microemulsion of claim 55, wherein said oil is selected from squalene, squalane, and mixtures thereof.

60. (New) The microemulsion of claim 59, wherein said ionic detergent is selected from one or more of the following: dioleoyl-3-trimethylammonium-propane, dioleoyl-sn-glycero-3-ethylphosphocholine and dioleoyl-phosphatidic acid.

61. (New) The microemulsion of claim 55, wherein said emulsifying agent further comprises a nonionic detergent selected from polyoxyethylene sorbitan monoester, polyoxyethylene sorbitan diester, polyoxyethylene sorbitan triester, sorbitan monoester, sorbitan diester, sorbitan triesters, and combinations thereof.

62. (New) The microemulsion of claims 55-61, further comprising an antigen.

63. (New) The microemulsion of claim 62, wherein said antigen comprises a tumor antigen.

64. (New) The microemulsion of claim 62, wherein said antigen comprises an antigen derived from a virus.

65. (New) The microemulsion of claim 62, wherein said antigen comprises an antigen derived from a bacterium.

66. (New) The microemulsion of claim 62, wherein said antigen comprises an antigen derived from a parasite or a fungus.



67. (New) The microemulsion of claim 64, wherein said virus is selected from hepatitis C virus (HCV), hepatitis B Virus (HBV), herpes simplex virus (HSV), human immunodeficiency virus (HIV), cytomegalovirus (CMV), influenza virus (flu), and rabies virus.

68. (New) The microemulsion of claim 65, wherein said bacterium is selected from the group consisting of cholera, diphtheria, tetanus, pertussis, *Helicobacter pylori*, and *Haemophilus influenza*.

69. (New) A composition comprising the microemulsion of claim 62 and a microparticle having an adsorbent surface, said microparticle comprising: (a) poly( $\alpha$ -hydroxy acid) and (b) a second ionic detergent which can be the same as or different from said ionic detergent.

70. (New) The microemulsion of claim 62, wherein said ionic detergent is a cationic detergent.